

In the claims:

1. (Currently Amended) A method for directly *in-situ* monitoring volatile compounds in a gas or vapor phase medium from a nucleic acid polymerase [[chain]] amplification reaction, in real-time during the reaction, which comprises one or more nucleic acids, comprising the steps of:

screening the medium with a multisensor array so that more than one physico-chemical change of a gas or vapor phase of a nucleic acid is detected in real-time during the reaction by the multisensor to provide detected information to produce at least one signal output;

transferring the signal output to a signal processing means responsive to differences in electromagnetic properties of the signal for generating a final output;

receiving the final output into a pattern recognition means sufficient to generate a measurement pattern of the information;

sorting the information in accordance with a set of class boundaries of the physico-chemical changes; and

monitoring sorted information in real-time during the reaction that is representative of the identity and amount the one or more nucleic acids in the medium.

2-3. (Canceled)

4. (Previously Presented) The method according to claim 1, wherein the multisensor array comprises a semiconductor gas sensor.

5. (Previously Presented) The method according to claim 1, wherein the multisensor array comprises at least one metal oxide gas sensor.

6. (Previously Presented) The method according to claim 1, wherein the multisensor array comprises at least one conductive polymer sensor.

7. (Previously Presented) The method according to claim 1, wherein the multisensor array comprises at least one of a vibrating or a resonant micromechanical device.

8. (Canceled)

9. (Previously Presented) The method according to claim 1, wherein the multisensor array comprises a mass spectrometer.

10. (Previously Presented) The method according to claim 1, wherein the multisensor array comprises an optical sensing probe.

11. (Canceled)

12. (Previously Presented) The method according to claim 1, wherein the information comprises at least one of odorous or volatile chemical species characteristic of the presence of a nucleic acid.

13. (Previously Presented) The method according to claim 1, wherein at least part of the information detected by the multisensor array is a change in the concentration of a nucleic acid.

14. (Previously Presented) The method according to claim 1, wherein at least part of the information detected by the multisensor array is a change in at least one secondary product of the reaction

15-44. (Canceled)

45. (Currently Amended) The method according to claim 1 subsequently comprising the step of controlling the polymerase [[chain]] reaction.

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